

REMARKS

Applicant thanks the Examiner for his consideration of this application. Reconsideration of this application is requested in view of the above amendments and the following remarks.

Claims 1-25 and 27-31 are pending in this application, of which Claims 1, 7, 15, 21, 24, 27, and 30 are independent claims. Claims 1, 7, 15, 21, 24, 27, and 30 have been amended, as will be discussed below. Claims 26 and 32 have been cancelled.

At pages 2-9, the Office Action rejects Claims 1, 6, 21, 24, 27, and 30 under 35 U.S.C. § 103(a) as being unpatentable over Jia et al. (U.S. Patent No. 7,103,325) in view of Tong et al. (U.S. Patent No. 7,120,395). At pages 9-13, the Office Action rejects Claims 2, 3, 22, 23, 25, 28, 29, and 31 under 35 U.S.C. § 103(a) as being unpatentable over Jia et al. and Tong et al., further in view of Walton et al. (U.S. Patent Application Publication No. 2004/0082356). At pages 13-17, the Office Action rejects Claims 7-14 under 35 U.S.C. § 103(a) as being unpatentable over Jia et al. in view of Walton et al. At pages 18-20, the Office Action rejects Claims 4 and 15 under 35 U.S.C. § 103(a) as being unpatentable over Jia et al. and Tong et al., further in view of Bjorklund et al. (U.S. Patent No. 7,126,926). At pages 20-22, the Office Action rejects Claims 16-18 under 35 U.S.C. § 103(a) as being unpatentable over Jia et al., Tong et al., and Bjorklund et al., further in view of Terry et al. (U.S. Patent No. 7,046,651). At pages 22-23, the Office Action rejects Claim 20 under 35 U.S.C. § 103(a) as being unpatentable over Jia et al., Tong et al., and Bjorklund et al., further in view of Sejnowski et al. (U.S. Patent No. 5,383,164). At page 23, the Office Action rejects Claim 19 under 35 U.S.C. § 103(a) as being unpatentable over Jia et al., Tong et al., and Bjorklund et al., further in view of Gopalakrishnan et al. (U.S. Patent No. 7,006,464). At pages 23-24, the Office Action rejects Claim 5 under 35 U.S.C. § 103(a) as being

unpatentable over Jia et al. and Tong et al., further in view of Gopalakrishnan et al. At pages 24-25, the Office Action rejects Claims 26 and 32 under 35 U.S.C. § 103(a) as being unpatentable over Jia et al. in view of Todd et al. (U.S. Patent No. 6,002,672). Claims 26 and 32 have been cancelled, thus rendering moot their rejections. The remaining rejections are respectfully traversed for at least the following reasons.

Claim 1, as amended, recites a method that includes, among other things, “c. performing a first set of signal processing operations at said first access point on a single received RF signal from said second access point when said first transmission mode is used;” and “d. performing a second set of signal processing operations, including at least one operation not included in said first set of signal processing operations, at said first access point on M independent RF received signals from said second access point when said second mode of operation is used.” That is, in the first mode, operations are performed on *only one received signal*, while in the second mode, operations are performed on M received signals. Furthermore, the first mode uses a *first set of operations*, while the second mode uses a *second set of operations that includes at least one operation not included in the first set of operations*.

The Office Action maintains that the combination of Jia et al. and Tong et al. teaches all of the elements of Claim 1. However, Applicant respectfully disagrees.

In particular, at page 3-4, the Office Action discusses portions of Jia et al. that address the adaptation of decoding/demodulation, using a channel matrix, based on channel conditions (the Office Action cites, e.g., col. 2, lines 32-45, col. 3, lines 33-50, and col. 5, lines 51-54) and asserts that this corresponds to the use of two modes of operation. The Office Action notes that Jia et al. does not disclose switching a number of antennas used and cites Tong et al. (abstract,

Figs. 6A-6C, 7A-7C, 8A-8C, col. 2, lines 3-10 and 16-22, col. 8, lines 31-33, and col. 13, lines 58-63) to remedy this deficiency.

However, Claim 1 recites that there are differences in the operations performed in the first and second modes of operation, namely, that the second mode includes at least one operation not included in the first mode. In contrast, Jia et al. (noting, e.g., the cited portions) uses the same operations, with adaptation of parameters, and does not use any different signal processing operations. Tong et al. also fails to remedy this deficiency of Jia et al.

For at least these reasons, it is respectfully submitted that Claim 1 is allowable over the cited references.

Claim 7, as amended, recites, among other things, “performing data transmissions during a first operating mode in a channel at a first access point using a first baseband processor;” and “performing data transmissions during a second operating mode in said channel at said first access point using a multi-antenna signal processing circuit that is not used in said first operating mode, including the following steps: (a) receiving M independent RF modulated input signals from a second access point; (b) processing said M independent RF modulated input signals using a channel mixing matrix to extract N independent data signals transmitted by said second access point.” Claims 7 also recites, “wherein said first operating mode and said second operating mode are automatically selected based on a transmission condition in said channel.” In other words, a *selection* is made between two modes of operation, and when a selection is made between the first mode and the second mode, *different sets of hardware components are used*. The Office Action asserts that the combination of Jia et al. with Walton et al. teaches all of the limitations of Claim 7; however, Applicant respectfully disagrees.

At page 14, the Office Action asserts that “*Jia* discloses transmission and reception scheme of a multi-antenna system that uses channel condition[s] to change the transmission-operating mode . . . it adaptively controls coding and modulation techniques for transmission.” The Office Action cites the sections of *Jia* et al. noted above.

First, as noted in the above excerpt from the Office Action, the Office Action asserts that *Jia* et al. teaches *adaptively controlling* coding and modulation techniques. That is, *Jia* et al. is an *adaptive* system. In contrast, the invention as claimed in Claim 7 *selects* between two modes.

Second, and in conjunction with this first difference, *Jia* et al. (noting, e.g., the cited portions (abstract, col. 2, lines 32-45, col. 3, lines 33-50, and col. 5, lines 51-54), as well as other portions thereof) always uses the *same* components to process signals (and adapts parameters of those components). In contrast, in Claim 7, a selection between the two modes corresponds to a selection between hardware used to process signals (i.e., operation in the first mode is associated with the baseband processor, and operation in the second mode invokes the multi-antenna processing circuit). Applicant further notes that Walton et al. fails to remedy these deficiencies.

For at least these reasons, Applicant respectfully submits that Claim 7 is allowable over the cited references.

Claim 15, as amended, includes the recitation, “wherein said multi-antenna signal processing circuit operates with said first baseband processor, in said second mode, to receive and transmit RF signals in a channel between said first access point and said second access point,” where the multi-antenna processing circuit and the first baseband processor are previously recited as being associated with first and second modes of operation. Again, similar to the discussions above, *Jia* et al. discloses a system that is *adaptive*, and which does not use

different operations or hardware components in different modes. Furthermore, Applicant has not found any disclosure or suggestion in Bjorklund et al. (or Tong et al., as noted above) that would remedy this deficiency of Jia et al. Hence, Applicant respectfully submits that Claim 15 is also allowable over the cited references.

Claim 21, as amended, includes “determining whether a first transmission mode or a second transmission mode should be used, and using a result of said determining to select between the first transmission mode and the second transmission mode;” “performing a first set of signal processing operations at the first access point on a received signal from the second access point when the first transmission mode is used;” and “performing a second set of signal processing operations, including at least one signal processing operation not included in said first set of signal processing operations, at the first access point on M independent received signals from the second access point when the second transmission mode is used.” In other words, Claim 21 has been amended to recite the selection between the two modes of operation and the inclusion, in the second mode, of at least one operation not performed during the first mode. Therefore, the discussion above also applies to Claim 21, and for at least that reason, Applicant respectfully submits that Claim 21 is allowable over the cited references.

Claim 24 has, similarly, been amended to recite that the second operating mode includes at least one operation not performed in the first operating mode, and also positively recites selecting between the modes. Therefore, the preceding discussions further apply to Claim 24, and for at least these reasons, it is respectfully submitted that Claim 24 is allowable over the cited references.

Claim 27 has been amended in a fashion similar to how Claim 21 has been amended, and therefore, the same discussion applies to Claim 27, and it is respectfully submitted that Claim 27 is also allowable over the cited references.

Claim 30 has been amended in a fashion similar to how Claim 24 has been amended, and therefore, the same discussion applies to Claim 30, and it is respectfully submitted that Claim 30 is also allowable over the cited references.

Given that all independent claims are allowable, it is respectfully submitted that all pending claims (Claims 1-25 and 27-31) are allowable.

Applicant may not have refuted any or all characterizations of either the claims or the prior art as found in the Office Action. However, the lack of such refutations is not intended to act as concurrence with such characterizations or waiver of the opportunity to make such refutations in the future.

Conclusion

Applicant respectfully submits that the above amendments and arguments fully address all grounds of rejection in the Office Action. In view of this, Applicant now respectfully requests prompt and favorable consideration of this response, reconsideration of this application, and withdrawal of all rejections.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

/Jeffrey W. Gluck/

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